

WHAT IS CLAIMED IS:

1. A one-way clutch apparatus comprising an inner race element having an outer peripheral surface on which either one of a concave cam and a cylindrical surface is formed, an outer race element having an inner peripheral surface on which the other of the concave cam and the cylindrical surface is formed, torque transmission members interposed between said concave cams and said cylindrical surfaces for performing torque transmission between said inner race element and said outer race element, biasing means for biasing said torque transmission members, bearing members adapted to maintain a space between said inner race element and said outer race element, and a retainer mounted on cam side element having the concave cams, out of said inner race element and said outer race element, for retaining said torque transmission members, said biasing means and said bearing members, wherein said retainer is rotatable in the circumferential direction relatively with said cam side element.

2. A one-way clutch apparatus according to claim 1, wherein said bearing member is a block bearing member which is retained by said cam side element and has a sliding contact surface which is brought into sliding contact with said cylindrical

surface.

3. A one-way clutch apparatus according to claim 1 or 2, wherein while a retaining groove for retaining said bearing member is formed on said cam side element, a latch convex portion which is fitted in said retaining groove and which has a smaller circumferential width than that of said retaining groove is formed on said bearing member.

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4. A one-way clutch apparatus according to claim 1 or 2, wherein said retainer is provided with a latch piece which is engaged with a circumferential side surface of said bearing member in order to prevent said bearing member from falling off in the radial direction.

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5. A one-way clutch apparatus according to claim 1 or 2, wherein said retainer is provided with a retaining column which is extended in the axial direction to retain said bearing member.

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6. A one-way clutch apparatus according to claim 5, wherein:
while the retaining groove for retaining said bearing member is formed on said cam side element, the latch convex portion fitted in said retaining

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groove and having a smaller circumferential width than that of said retaining groove is formed on said bearing member; and

5 a circumferential width of a space formed between said retaining groove and said latch convex portion is larger than an overlapping width of said bearing retaining column with said concave cam.

7. A one-way clutch apparatus according to
10 claim 1 or 2, wherein said biasing means is an accordion spring.

8. A one-way clutch apparatus comprising an inner race with a cylindrical surface formed on the
15 outer periphery thereof, an outer race with concave cams and retaining grooves formed on the inner periphery thereof, a retainer disposed between said inner race and said outer race, torque transmission rollers disposed at the positions corresponding to
20 said concave cams on said retainer, accordion springs mounted on said retainer for biasing said torque transmission rollers in a direction of engagement inside said concave cams, and block bearings each having an engagement convex portion fitted in said
25 retaining groove formed on said outer race for retaining a space between said inner race and said outer race, said retainer being provided with a latch

piece engaged with a circumferential side surface of said block bearing,

wherein said retainer is rotatable in the circumferential direction relatively with said outer
5 race.

9. A one-way clutch apparatus comprising an outer race with a cylindrical surface formed on the inner periphery thereof, an inner race with concave
10 cams and retaining grooves formed on the outer periphery thereof, a retainer disposed between said inner race and said outer race, torque transmission rollers disposed at the positions corresponding to said concave cams on said retainer, accordion springs
15 mounted on said retainer for biasing said torque transmission rollers in a direction of engagement inside said concave cams, and block bearings each having an engagement convex portion fitted in said retaining groove formed on said inner race for
20 retaining a space between said inner race and said outer race, said retainer being provided with a latch piece engaged with a circumferential side surface of said block bearing,

wherein said retainer is rotatable in the circumferential direction relatively with said inner
25 race.

10. A sub assembly to be assembled in an inner race with a cylindrical surface formed on the outer periphery thereof for constituting a one-way clutch, comprising an outer race with concave cams and
5 retaining grooves formed on the inner periphery thereof, a retainer disposed between said inner race and said outer race, torque transmission rollers disposed at the positions corresponding to said concave cams on said retainer, accordion springs
10 mounted on said retainer for biasing said torque transmission rollers in a direction of engagement inside said concave cams, and block bearings each having a latch convex portion fitted in said retaining groove formed on said outer race for
15 retaining a space between said inner race and said outer race when said sub assembly is assembled in said inner race,

wherein said retainer is provided with a latch piece engaged with a circumferential side surface of
20 said block bearing, and said retainer is rotatable in the circumferential direction relatively with said outer race.